

WHAT IS CLAIMED IS:

1. A watercraft apparatus comprising:
a hull;
a jet pump;
an engine supported within the hull, the engine having a crankshaft and at least one camshaft, each camshaft being driven at a reduced speed relative to the crankshaft;
a jet pump operatively coupled to the at least one camshaft to be driven at the reduced speed of the camshaft, the jet pump supported for providing drive power to drive the hull on water.
2. The apparatus of claim 1, wherein the reduced speed of the camshaft is one half the speed of the crankshaft.
3. The apparatus of claim 1, further comprising a retractable blade extendable below the bottom of the watercraft in response to a the a reduction in power from the engine to the jet pump below a predetermined amount.
4. The apparatus of claim 1, wherein the engine and jet pump are supported by a take-out jet housing structure comprising:
a first housing containing the engine with the jet pump coupled thereto;
a second housing fixed to the hull;
a suspension system for suspending the first housing within the second housing and allowing the first housing to be removed from the second housing for inspection, repair or replacement.

5. The apparatus of claim 3, wherein the suspension system comprises tubing attached to outside surfaces of the first housing, inside surfaces of the second housing or both.

6. The apparatus of claim 4, wherein the suspension system further comprises a pressure source connected to the tubing, for providing pressurized fluid or gas into the tubing.

7. The apparatus of claim 5, wherein the pressure source is controlled to provide pressurized fluid or gas in response to starting or running of the engine.

8. The apparatus of claim 1, wherein the jet pump is coupled to at least one camshaft through a direct connection link comprising a splined extension member and a matching socket, wherein the splined extension member is provided on either one of a sprocket of the camshaft or a rotor of the jet pump, and wherein the mating socket is provided on the other one of the sprocket or rotor.

9. The apparatus of claim 1, wherein the jet pump is coupled to at least one camshaft through a direct connection link comprising a multi-bolt flange.

10. A watercraft apparatus comprising:
a hull;
a jet pump;
an engine supported within the hull and operatively coupled to the jet pump to provide power to the jet pump;
a retractable blade extendable below the bottom of the watercraft in response to a the a reduction in engine power to the jet pump below a predetermined amount.

11. The apparatus of claim 10, wherein the retractable blade comprises a retraction linkage operatively coupled to receive a pressure signal from the jet pump and responsive to the pressure signal to control the extension of the blade.

12. The apparatus of claim 10, wherein the retractable blade is mounted for controlled pivotal motion to provide steering control to the hull, upon the blade being extended to a predetermined amount.

13. The apparatus of claim 10, wherein the retractable blade comprises a blade member supported for pivotal motion about an axis of a shaft, an expandable and retractable cylinder connected to the blade member at a location laterally offset to one side of the shaft, to selectively pivot the blade member about the axis of the shaft with the expansion or retraction of the cylinder.

14. The apparatus of claim 13, wherein the cylinder comprises an hydraulic cylinder for expansion and retraction in response to hydraulic pressure.

15. The apparatus of claim 14, wherein the cylinder is connected to receive hydraulic pressure from a volute of the jet pump.

16. The apparatus of claim 13, further comprising a filter supported by the hull, for filtering water before the water enters the jet pump, the filter comprising a movable filter element movable between higher and lower engine power positions, wherein the movable filter element is connected to the shaft to move between higher and lower engine power positions in response to rotation of the shaft.

17. The apparatus of claim 10, wherein the engine has a crankshaft and at least one camshaft, each camshaft being driven at a reduced speed relative to the crankshaft; and wherein the jet pump is operatively coupled to the at least one camshaft to be driven at the reduced speed of the camshaft

18. A retractable fin apparatus for a watercraft having a hull, a jet pump and an engine for providing power to the jet pump, the apparatus comprising a retractable blade extendable below the bottom of the watercraft in response to a reduction in engine power to the jet pump below a predetermined amount, the retractable blade having a blade member supported for pivotal motion about an axis of a shaft, an expandable and retractable cylinder connected to the blade member at a location laterally offset to one side of the shaft, to selectively pivot the blade member about the axis of the shaft with the expansion or retraction of the cylinder.

19. The apparatus of claim 18, wherein the cylinder comprises an hydraulic cylinder for expansion and retraction in response to hydraulic pressure.

20. The apparatus of claim 19, wherein the cylinder is connected to receive hydraulic pressure from a volute of the jet pump.